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THE IMPERIAL INSTITUTE

FOR some time before the scheme of the Prince of Wales's Committee was before the public, there was a feeling that it seemed only too probable that the Imperial Institute would be merely a show-place for the amusement of sight-seers and for the benefit of the showmen. Happily this danger has been averted. Prof. Huxley and others have sounded a note which has now brought the real basis of trade and commerce to the front. It is possible that the mere trade-product view will now give way, so that we may hope the scheme in its final form will be hardly less scientific than that sketched by us in the first of our articles on "Science and the Jubilee" (p. 217). If this anticipation is realised, the Institute will be in every sense a worthy memorial of the fiftieth anniversary of the Queen's reign, and will prove to be of enduring benefit to the whole Empire. There cannot be the slightest doubt as to the necessity for a vital change in our national way of regarding scientific as if they were opposed to industrial methods. There was a time when England, with her monopoly of coal and iron, had practically no competitors in the great markets of the world. By the splendid achievements of her inventors, and by the energy and promptitude of her manufacturers and traders, she had got so far—having such a monopoly of raw material—ahead of her rivals that the foremost place in commerce seemed to belong to her by a sort of natural right. Within the lifetime of the present generation all this has been changed. France, Germany, and other nations gradually became aware that they also, if they pleased, might play a prominent part in the industrial movement, and they set to work in the right way to fit themselves for the new conditions of modern life. Recognising that permanent success could be accomplished only by knowledge and organised effort, they provided for the education both of employer and employed by the establishment of schools, and by every means at their disposal encouraged the development of science. The consequence is that England has been driven from some markets in which she was formerly supreme, and that in others she finds it hard to maintain her ancient predominance. There is not the faintest chance that she will recover the ground she has lost unless she chooses to adapt herself to the altered circumstances by which she is surrounded. In commerce, as in all other relations, it is the fittest that survives; and if raw material fails, then greater knowledge alone can triumph; and the fittest commercial nation is the nation which equips its workers with the most exact knowledge, the most alert intelligence, and the most thorough technical skill. If the Imperial Institute is founded and carried on in accordance with the best and most characteristic ideas of our time, it may make Greater Britain greater yet, if it helps to bring British industry under the dominion of the scientific spirit; and to secure for it this magnificent position ought unquestionably to be the aim of all who undertake to press its claims on the attention of the public.

This aspect of the subject was kept prominently in view by all the principal speakers at the meetings in St. James's Palace and the Mansion House last week. The Prince of Wales laid the strongest emphasis on the fact that, in all parts of the civilised world, commerce and manufactures have been profoundly affected by the progress of science. "I have, on more than one occasion," he said, "expressed my own views, founded upon those so often enunciated by my lamented father, that it is of the greatest importance to do everything within our power to advance the knowledge, as well as the practical skill, of the productive classes of the Empire. I therefore commend to you, as the leading idea I entertain, that the Institute should be regarded as a centre for extending knowledge in relation to the industrial resources and commerce of the Queen's dominions. With this view it should be in constant touch, not only with the chief manufacturing districts of this country, but also with all the colonies and India. Such objects are large in their scope, and must necessarily be so, if this Institute is worthily to represent the unity of the Empire."

Prof. Huxley spoke at the Mansion House and, of all the speeches delivered there, his was the most striking. As the present needs of the nation, and how an Imperial Institute might be made to help us, are never likely to be more lucidly or more impressively stated, it seems to us that we shall do our readers good service by printing the speech in full. Seconding the resolution proposed by Lord Rothschild, "That this meeting pledges itself to take all practicable steps to assist in the formation of the Imperial Institute, and to support it when brought into existence," Prof. Huxley said:—

"He wished to state, very briefly, his opinion of the value of the proposed Institute from the point of view of a man of science. The epoch coincident with Her Majesty's reign was remarkable above all corresponding periods of human history that he knew anything about for two peculiarities. One was the enormous development of industry, and the other was the no less remarkable and prodigious development of physical science, which two developments, indeed, had gone hand in hand. The opinion which he was now expressing was not one formed *ad hoc* for the purpose of this meeting. It was one which he expressed two or three years ago when taking leave of the Royal Society. It was a matter which was perfectly obvious to any person who had paid attention either to the history of science or to the history of industry, that there had been nothing, not only in any period of fifty years, but in any century, in the slightest degree comparable with the magnitude and the importance of the growth of those two branches of human activity which had taken place since 1837. His memory went back far enough to call to mind with great vividness a period when industry, or, at least, the chiefs and the leaders of industry, looked very much askance at science. The practical man then prided himself on caring nothing for it, and made it a point to disbelieve that any advantage to industry could be gained by the growth of what he was pleased to call abstract and theoretic knowledge. But within the last thirty years more particularly that state of things had entirely changed. There began in the first place a slight flirtation between science and industry, and that flirtation had grown into an intimacy, he might almost say courtship, until those who watched the signs of the times saw that it was high time that the young people married and set up an establishment for themselves. This great scheme, from his point of view, was the public and ceremonial marriage of science and industry. It

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was the recognition on the part of those persons who were best able to judge of what were the wants of the industry of the time, that, if they were to be developed in a way proportionate to their importance, they must be developed by scientific methods and by the help of a thoroughly scientific organisation. A great distinction was commonly drawn by some philosophic friends of his between what they called militarism and what they called industrialism, very much to the advantage of the latter. He by no means disputed that position; but he would ask any one who was cognisant of the facts of the case, who had paid attention to what was meant by modern industry pursued by the methods now followed, whether, after all, it was not war under the forms of peace? It was perfectly true that the industrial warfare was followed by results far more refined in their character than those which followed in the track of military warfare. It did not break heads and shed blood, but it starved. The man who succeeded in the war of competition and the nation which succeeded in the war of competition beat their opponents by his starvation. It was a hard thing to say, but the plain simple fact of the case was that industrial competition among the peoples of the world at the present time was warfare which must be carried on by the means of warfare. In what respect did modern warfare differ from ancient warfare? It differed because it had allied itself with science, because it trusted in knowledge, organisation, and discipline, and not in mere physical strength and numbers, because it took advantage of every scientific discovery by which the weapons of offence and defence could be perfected, and because it required the highest possible information on the part of those who were engaged in that warfare; and if the peaceful warfare of industrialism was to succeed it must follow the same methods. The operations of the leaders of industry must be organised; they must call to their aid, as military leaders were doing, every possible help which was to be gathered from science. They all knew what help science was already giving to industry; it would not do to remain contented with this accidental aid, but those who conducted industrial operations should be trained and disciplined in those different branches of human knowledge which dealt with the needs and wants of nations and with the distribution of commodities. This country had dropped astern in the race for want of that education which was obtained elsewhere in the highest branches of industry and commerce. It had dropped astern in the race for want of instruction in technical education which was given elsewhere to the artisan; and if they desired to keep up that industrial predominance which was the foundation of the Empire, and which, if it failed, would cause the whole fabric of the State to crumble—if they desired to see want and pauperism less common than unhappily they were at present, they must remember that one of the chief means of diminishing those evils was the organisation of industry in the manner in which they understood organisation in science, that they must strain every nerve to train the intelligence that served industry to its highest point, and to keep the industrial products of England at the head of the markets of the world. He looked, therefore, on the Institute as the first formal recognition of this great fact—that our people were becoming alive to the necessity of organisation of industry and the improvement of industrial knowledge. It was on that ground that he supported the proposition. It appeared to him that it would be a worthy and fitting memorial of Her Majesty's reign, if they created an institution which permanently represented that which was the great and characteristic feature of the period, that which would mark the Victorian epoch in history as the epochs of Augustus and Pericles had been marked. An Institute having such objects and purposes as had been described appeared to him to be a monument not only more lasting than brass, but one which for centuries to come would hold before the people an image of the objects after which they had to strive, if they desired to organise their activities in such a manner as would lead to their perennial welfare."

This admirable statement by Prof. Huxley it is to be hoped will be read by everybody interested in the welfare of Greater Britain. It will not be enough, however, to see that the army of peace is alone organised within one Institute only, however Imperial it may be.

Our chief want now is knowledge in high places. We do not forget that in our present Prime Minister we have a patient student of science, and one who knows the need of it for the country. But there are a thousand ways in which the ignorance, or rather let us say the want of scientific instruction and of appreciation of the fact that a modern State can only be great on account of its commerce and of its superiority in all international relations, and that greatness in these directions depends upon *knowledge*, is doing this country great harm.

We are not without signs that this also is being recognised. The *Times*, in a remarkable leading article the other day, pointing out the importance of meteorology—and the moral it draws would have been equally true of any other branch of knowledge—writes as follows:—

"Meteorology is a science of great practical importance and of great speculative interest, which is pursued in this country under considerable disadvantages. The Atlantic starves it on one side, and the Treasury on the other. It exists within an area of permanent depression. The Government does dole out something for its support, but it takes a large part of it back in the shape of telegrams. While the Atlantic curtails our horizontal information of the condition of the atmosphere, Nature has given us mountains which offer valuable opportunities for vertical investigation. A few earnest men of science and public-spirited citizens have set up an observatory on Ben Nevis at a cost of more than five thousand pounds, and, beyond allowing twopence in the shilling upon telegrams despatched from the top, the Government, we believe, does nothing for its support. It even charges a heavy rent for the telegraph-wire. This nation thinks nothing of wasting, by improvident method, in the building of a single ironclad as much money as would maintain all our scientific establishments for a decade. But while there is the most indefensible squandering of public money at the War Office and the Admiralty, there is the meanest parsimony towards science and scientific education—the only things that, as Prof. Huxley pointed out the other day, can save us from being crushed in the fierce competition of peace, which kills as surely as that of war. The Treasury knows in a vague sort of way what an ironclad is, but we doubt whether there are three men in the department who could give an intelligent definition of physics."

Assuming that the *Times*' estimate of the knowledge available at the Treasury is exact, our point is that it is the system and not the individuals who should bear the blame. Nor is the Treasury the only department in which a knowledge of science is imperative, or in which successive Ministries have taken no action to provide it.

It is well that all these questions should now be raised, and the more questions of this order are raised by the Institute movement the better for us will it be.

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